

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. - 17. (Canceled)

18. (New) Method for imaging a mask on a substrate by means of an illumination unit comprising an illumination source and an optical unit, comprising moving said illumination unit and said optical unit relative to said mask and said substrate and detecting distortions of said substrate, distorting the image of said mask to adapt the image to the distortions of said substrate by means of said optical unit, wherein illumination dots are created on said mask and, furthermore, individual images are created on said substrate that overlap in the edge areas, providing that illumination intensity in an edge area of said illumination dots be less by a predefined amount than in the center of said illumination dot and/or that the illumination intensity of the illumination dot have a Gauss-like distribution, and, depending on the distortions of said substrate, displacing the individual images, each of which corresponds to an illumination dot, overlapping and continuously joined to one another on said substrate.

19. (New) Method according to claim 19, wherein said individual images are moved on said substrate by means of active displacing elements and/or by controlling said displacing elements said individual images are combined such that the required distortion of the overall image is attained, whereby each individual image is corrected to an undistorted 1:1 image of said mask.

20. (New) Method according to claim 19, wherein said displacing elements cooperate with the optical unit.

21. (New) Method according to claim 20, further comprising calculating said distortion of said substrate by measurement marks of said mask and said substrate or by assigning distortion values and/or by a combination of measurement marks and assigning distortion values and/or by determining relative positions of marks of said mask to marks of said substrate and/or by effecting said distortion of said image of said mask such that said marks of said mask are imaged on said marks of said substrate, thereby to correct said mask and/or said substrate.

22. (New) Method according to claim 21, wherein the distortion of the image of said mask and/or an orientation is performed by overlapping or continuous joining of individual images that are smaller than the entire image of

said mask, whereby said distortions are performed by translation, rotation, shearing, or direction-independent scaling.

23. (New) Method according to claim 22, wherein the illumination intensity of said illumination dots is softly shielded and the illumination source comprises a laser.

24. (New) Method according to claim 23, wherein the movement of said illumination dot on said mask is composed of two movements, and/or the correction of said individual image is performed on said substrate corresponding to the position of said illumination dot on said mask and/or combination of the two movements is taken into account for correcting and/or controlling said illumination dot.

25. (New) Method according to claim 24, wherein the two movements are rapid scanning of the illumination and a slower movement of a mechanical unit receiving said mask and said substrate.

26. (New) Method according to claim 25, further comprising controlling the illumination intensity on said mask by controlling said illumination source or a controllable damping element and/or controlling the illumination intensity as a

function of position of said illumination dot on said mask and/or controlling the illumination intensity as a function of the speeds of said mechanical unit receiving said mask and said substrate.

27. (New) Method according to claim 25, wherein the laser is a pulsed laser and further comprising controlling the illumination intensity by controlling pulse rate of the laser.

28. (New) Method according to claim 26 or 27, further comprising calibrating optical path by imaging a reference mark or reference structure by means of an exposure source contained in said illumination unit on an alignment camera that, like said mask and said substrate and together with them, is arranged on said movable mechanical unit and/or realigning the optical path by means of at least one active element of said optical unit, and/or calibrating optical measurement devices by means of an alignment camera and a reference mark that are arranged on said movable mechanical unit.

29. (New) Apparatus for imaging a mask on a substrate, comprising a mechanical unit on which said mask and said substrate are arranged spaced from one another, and that includes at least one drive, an illumination unit for creating an illumination dot on said mask and furthermore includes in an optical path

between said mask and said substrate an optical unit by means of which an illumination dot can be imaged on said substrate, said mechanical unit being adapted for fixed unchangeable receiving of said mask and said substrate during imaging, said mechanical unit being movably arranged relative to said illumination unit and said optical unit, which are securely coupled to one another, said optical unit comprising at least one active displacing element for displacing said illumination dot on said substrate, and said displacing element being controllable as a function of distortions of said substrate, whereby illumination dots can be created on said mask by means of said illumination unit and furthermore can be created on said substrate in individual images overlapping edge areas, and said illumination dots can be created with their edge areas overlapping on said mask by means of said illumination unit, wherein in said edge areas the illumination intensity is smaller by a predetermined amount than in the center of said illumination dots, and the individual images, each of which corresponds to an illumination dot, are displaced overlapping and continuously joined to one another on said substrate by means of said active displacing element as a function of the distortions of said substrate.

30. (New) Apparatus in accordance with claim 29, wherein image field of said optical unit and/or the individual image created by means thereof is smaller than the entire image of said mask, whereby the entire image of said mask can be

composed of a predetermined number of the aforesaid individual images, and further comprising a computer system for controlling said active displacing element so that, depending on established distortions and/or corresponding thereto, a distortion of an entire image of said mask can be effected by combining correspondingly deflected said individual images.

31. (New) Apparatus in accordance with claim 30, wherein said mechanical unit comprises a cage that is adapted for mutual fixed and spaced arrangement of said mask and said substrate, said optical unit is arranged in said cage between said mask said substrate, and/or said optical unit and said illumination unit are mechanically coupled to one another, and are arranged movable relative to said cage, whereby said cage is movable relative to said optical unit and said illumination unit by means of driver.

32. (New) Apparatus according to claim 31, wherein said optical unit comprises imaging optics with two lenses or lens systems, said mask being arranged in a front focal point of the first lens or the first lens system and said substrate being arranged in a back focal point of the second lens or second lens system, the ray path being point-reflected via a retroreflector in front of said first lens or said first lens system or after said second lens or said second lens system.

33. (New) Apparatus according to claim 31, wherein the imaging optics comprises a 4f arrangement.

34. (New) Apparatus according to claim 33, wherein said optical unit comprises a correction unit for displacing the image perpendicular to the optical axis in the image plane or the displacing elements are operable to effect said displacing.

35. (New) Apparatus according to claim 34, further comprising a plane-parallel plate by means of which a ray bundle is displaceable parallel to an optical axis by tilting of the parallel plate perpendicular to the optical axis, and/or further comprising a mirror that is tiltably arranged perpendicular to entering and exiting ray bundle, and/or further comprising a retroreflector that is displaceable perpendicular to the optical axis.

36. (New) Apparatus according to claim 35, wherein said retroreflector is movably arranged such that the light path in the imaging optics can be lengthened or shortened and thus image plane can be imaged precisely on the surface of said substrate, whereby setting of the image plane can be adjusted statically by providing target values or dynamically by positional measurement of the surface of said substrate.

37. (New) Apparatus according to claim 36, wherein said illumination unit creates at least two illumination dots on said mask and the apparatus further comprises a corresponding number of said optical units with imaging and correction units for creating at least two or more individual images on said substrate.

38. (New) Apparatus according to claim 37, wherein for simultaneous copying of said mask on one or a plurality of said substrates, said illumination unit creates a plurality of illumination dots on said mask, and/or the apparatus comprises a beam splitter arranged in the optical path between said mask and said substrate or substrates such that a plurality of individual images can be created on said substrate or substrates by a plurality of ray paths.